

FIG. 1

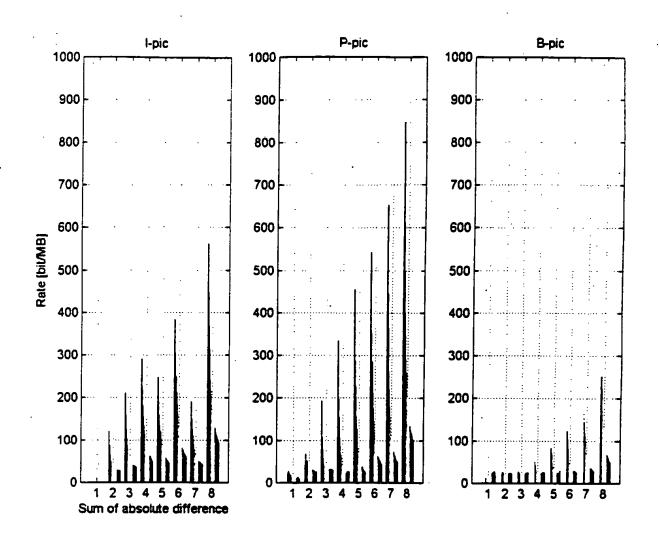


FIG. 2

$MQuant = Q_{j} \cdot N_{act_{j}}$		
Estimated Quantization step size	$Q_j = d_j \cdot 31/r$	
Virtual Buffer Discrepancy (<i>d_i</i>)	$d_j = B + S - j \cdot \frac{T}{N}$ B: current buffer status S: bits spent util (j-1)th macroblock T: bit budget for current frame N: # of macroblocks in a frame	
Reaction Parameter (r)	2. bit_rate picture_rate	
Normalized Activity	$N_{act_{j}} = \frac{2 \cdot act_{j} + avg_{act}}{act_{j} + 2 \cdot avg_{act}}$	
MB Activity	$act_j = min\{var_of_lum_blk\}$ Note: it is the value of minimum variance among 4 luminance blocks in a macroblock.	

FIG.3

Foreman (moderate to high motion)	TM5 rate control	Proposed rate control based on SAD
Bits/frame	4324	4412
PSNR	30.77	30.57

irene (slow to moderate motion)	TM5 rate control	Proposed rate control based on SAD
Bits/frame	18822	18719
PSNR	36.31	36.03

FIG. 4

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